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COMPLETE SPECIFICATION**

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PATENTS FORM NO. 4.

PATENTS ACT 1953

PROVISIONAL SPECIFICATION

"IMPROVEMENTS IN AND RELATING TO BLOCK WALLS".

I, JAMES WALTER LOUIS DE GALL HARRIS, a British subject and New Zealand citizen, of 10 Fortification Road, Wellington, E.S., New Zealand, do hereby declare this invention to be described in the following statement:-

THIS INVENTION relates to block walls and more particularly relates to those blocks known as crib blocks which are intended for the construction of such as earth or sand retaining walls, although it will be appreciated that such blocks can be used for other than retaining walls and may be used, for example, as decorative walls or dividers.

The object of this invention is to provide an improved construction of crib building block and which is of relatively simple construction to thus facilitate manufacture and facilitate the subsequent erection of a retaining or like wall, such block including means to ensure positive interlocking of one block with another and providing that the need for front and rear stretches or runners, as are usually provided in conventional crib retaining walls, is eliminated.

According to this invention there is provided a block for use in erection of retaining walls, said block having an elongate and generally rectangular formation, the end portions of said block being provided with outstanding projections on the upper face and/or the lower face thereof and with grooves or recesses on the two side faces; the arrangement providing that the projections on the end portion of one block are engageable with the grooves or recesses in the end portion of an identical further block then the end portions are placed one upon the other with one block generally at right angles to the other block.

The block of this invention may be constructed from concrete or any other suitable material and may be formed such as by casting in moulds.

The block is generally rectangular in cross-section and is elongate, actual dimensions may vary according to a users' requirements and the purpose to which the block is to be put. At each end portion of the block there are provided two upstanding projections or studs in spaced relationship along the centre line of the upper face, one such projection being at the end of the block and the other projection spaced therefrom

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at a distance equal to the width of the block.

Further, on each side wall of each end portion of the block there is provided a vertical groove or recess running from top to bottom of the block and at a distance from the end of the block equal to one half the width of the block. The grooves are complementary in cross-section, when viewed in plan, to the cross-section of each projection or stud when viewed in plan. Thus the projections may be of rectangular cross-section and the grooves or recesses are also of rectangular cross-section, or the projections or studs can be of semi-circular cross-section and the grooves or recesses similarly formed.

In use of blocks constructed in accordance with this invention, the end portion of one block may be engaged with the end portion of a further identical block by placing such end portions one upon the other, but with one block at right angles to the other so that the projections on the upper face of one block may be located in the recesses of a next block placed thereabove so that a V formation is formed by the two blocks when viewed in plan and thus inter-engaged. Thus, a series of blocks can be inter-engaged at their end portions in erecting a retaining wall and the arrangement provides that the wall may be erected with a zig zag formation or a turret formation, when viewed in plan, depending on the direction of one tier of blocks relative to adjacent tiers.

The invention has been described with reference to the projections being on the upper side or face of the block but it will be appreciated that the block may be reversed so that the projections are on the underside, this procedure may be adapted when providing the upper or capping run of blocks in a wall, or projections may be provided both on the upper side and the underside of the blocks, Further, it has been mentioned that the grooves or recesses extend from top to bottom of the block but this is generally for convenience of manufacture and it will be appreciated that such recesses need only extend for the depth of the projections which are to be accommodated therein.

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It is envisaged also that the block with projections and recesses as aforescribed can be made with a length equal to twice its width and thus a plurality of such blocks can be used or laid in a close fitting arrangement after the manner of the common building brick with alternate courses of headers and stretchers. Further, if so desired, a complementary additional series of blocks can be provided each of which is of overall dimensions substantially equal to the block described above but with the disposition of the projections and recesses reversed so that alternate tiers of above described blocks and complementary blocks can be laid parallel to and interlocking with each other instead the right angled zig-zag or turret formations.

It is still further envisaged that in a modification of the first described block series additional projections and recesses, set out at intervals equal to the width of the block and in a manner complementary to the end setting out, can be provided intermediate the block ends to provide for variations in the wall to be erected. If desired the projections and recesses can be provided along the full length of the block.

Thus, by this invention, there is provided a simple and effective construction of building block with means for ensuring positive engagement of the end of one block with the end of another and it will be seen that a strong retaining wall may be easily and quickly erected by use of the blocks of this invention. Further the provision of the zig za, or turret formation of retaining wall eliminates the need for providing front and rear runs of blocks or stretches as are conventionally used in the erection of retaining walls. Thus, by this invention, a strong retaining wall utilizing considerably less blocks in

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number than are conventionally used may be provided.

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By his Authorized Attorneys,
BALDWIN, SON & CAREY.

John A. Remington

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PATENTS FORM NO. 5.

PATENTS ACT, 1953

COMPLETE SPECIFICATION

AFTER PROVISIONAL

Number 151299

Dated 15th January
1968

"IMPROVEMENTS IN AND RELATING TO BLOCK WALLS"

I, JAMES WALTER LOUIS DE GALL HARRIS, a British subject and New Zealand citizen, of 10 Fortification Road, Wellington, 3.5., New Zealand, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:-

This invention relates to block walls and more particularly relates to those blocks known as crib blocks which are intended for the construction of such as earth or sand retaining walls, although it will be appreciated that such blocks can be used for other than retaining walls and may be used, for example, as decorative walls or dividers. Also small scale versions of the invention can be provided as toy building elements.

The object of this invention is to provide an improved construction of crib building block and which is of relatively simple construction to thus facilitate manufacture and facilitate the subsequent erection of a retaining or like wall, such block including means to ensure positive interlocking of one block with another and providing that the need for front and rear stretches or runners, as are usually provided in conventional crib retaining walls, is eliminated.

According to this invention there is provided a block for use in the erection of retaining or other walls, said block having an elongate and generally rectangular formation, the end portions of said block being provided with outstanding spaced projections on the upper face and/or the lower face thereof and with grooves or recesses on two opposite side faces; the arrangement providing that the projections on the end portion of one block are engageable with the grooves or recesses in the end portion of an identical further block when the end portions are placed one upon the other with one block generally at right angles horizontally to the other block.

The block of this invention may be constructed from concrete or any other suitable material and may be formed such as by casting in moulds for general constructional purposes, or small size blocks for use as toy or educational building elements can be formed by any suitable means from such as

plastics materials.

The invention will now be described by way of example and with reference to the accompanying drawings, in which:-

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Figure 1 is a plan view of a first preferred form of retaining block, Figure 2 is a side elevational view of the block shown in figure 1, Figure 3 is an end elevational view of the block shown in figures 1 and 2.

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Figure 4 is a perspective view from above illustrating an assembly of the blocks of figures 1 to 3,

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Figures 5 and 6 are diagrammatic plan views illustrating ways in which the invention may be applied in forming retaining or decorative walls, and

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Figures 7 to 11 are perspective views illustrating alternative forms of blocks constructed in accordance with the invention but capable of being used in the construction of bond walls.

~~XXXXXXXXXXXX~~

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Referring firstly to figures 1 to 6 of the drawings, the block 1 is generally rectangular in cross-section and is elongate, actual dimensions varying according to a users' requirements and the purpose to which the block 1 is to be put. At each end portion 1a of the block 1 there are provided two upstanding projections or studs 2 and 3 in spaced relationship along the centre line of the upper face, one such projection 2 being at the end of the block 1 and the other projection 3 spaced therefrom so that the dimension over the projections is substantially equal to the external width of the block 1.

Further, on each opposed side wall of each end portion 1a of the block 1 there is provided a vertical groove or recess 4 running from top to bottom of the block 1 and at a distance from the end of the block 1 equal to one half the external width of the block so as to open to the upper and lower sides thereof. The grooves 4 are complementary in cross-section, when viewed in plan, to the cross-section of each projection or stud, 2 or 3, when viewed in plan. Thus the projections 2 and 3 can be of rectangular cross-section and the grooves or recesses 4 also of complementary rectangular cross-section, or (and as illustrated) the projections or studs 2 and 3 can be of semi-circular cross-section and the grooves or recesses 4 similarly formed.

In use of blocks 1 constructed in accordance with this first form of the invention, the end portion 1a of one block 1 can be engaged with the end portion 1a of a further identical block 1 by placing such end portions 1a one upon the other, but with one block 1 at right angles to the other in the horizontal planes so that the projections 2 and 3 on the upper face of one block 1 can be located in the recesses 4 of a next block 1 placed thereabove so that a right angled V formation is formed

by the two blocks 1 when viewed in plan and thus inter-engaged. Thus, a series of these blocks 1 can be inter-engaged at their end portions 1a in erecting a retaining or other wall and the arrangement provides that the wall may be erected with a turret formation, (as illustrated in figure 5) or a zig zag formation, (as illustrated in figure 6), viewed in plan, depending on the direction of one tier of blocks 1 relative to adjacent tiers. These arrangements also provide sheltered bays 8 in which such as shrubs or seats can be located.

The invention has been described with reference to the projections being on the upper side or face of the block 1 but it will be appreciated that the block 1 may be inverted so that the projections 2 and 3 are on the underside, this procedure may be adapted when providing the upper or capping run of blocks 1 in a wall, or (in an arrangement not shown) projections can be provided both on the upper side and the underside of the blocks 1. Further, it has been mentioned that the grooves or recesses 4 extend from top to bottom of the block 1 but this is generally for convenience of manufacture and it will be appreciated that such recesses need only extend for the depth of the projections 2 and 3 which are to be accommodated therein.

Further, and referring particularly to figure 4 of the drawings, a flush end to a wall can be provided by having short filler blocks 5 which are generally square, at least in plan view, and thus equal in length to an end portion of a block 1 and having a formation complementary thereto. In a further modification of the invention, the end portions 1a of each block 1 can be provided with a vertical centrally placed hole 9 which is alignable with a next interlocking block 1 and wherein such as a steel reinforcing rod can be located where additional corner and interlocking strength is required.

It is envisaged also that the block with projections and recesses as aforescribed can be made with a length equal to twice its width, as illustrated in figure 7 and denoted by the numeral 6, and thus a plurality of such blocks 6 can be used or laid in a close fitting arrangement, such as that illustrated in figure 8, after the manner of the common building brick with alternate courses of headers and stretchers. Further, if so desired, a complementary additional series of blocks such as those illustrated in figure 9 and denoted by the numeral 7 can be provided, each of which is of overall dimensions substantially equal to the block 6 described above but with the disposition of the projections and recesses reversed so that alternate tiers of above described blocks 6 and complementary blocks 7 can be laid in staggered relationship and parallel to and interlocking with each other, as shown by way of example in figure 10, instead the right angled zig-zag or turret formations.

It is still further envisaged that in a modification of the first described block a series of additional projections and recesses, set out at intervals equal to the external width of the block and in a manner complementary to the end setting out can be provided intermediate the block ends to provide for variations in the wall to be erected. If desired the length of the block is in multiples of its width and sets of projections and recesses can be provided along the full length of the block as illustrated by way of example in figure 11 of the drawings.

Thus, by this invention, there is provided a simple and effective construction of building block with means for ensuring positive engagement of the end of one block with the end of another and it will be seen that a strong retaining or other wall may be easily and quickly erected by use of the blocks of this invention. Further the provision of the zig zag or turret formation of retaining or other wall eliminates the need for

providing front and rear runs of blocks or stretchers as are conventionally used in the erection of retaining walls, as well as providing a wall of pleasing appearance. Also by this invention, a strong retaining or other wall utilizing considerably less blocks in number than are conventionally used may be provided.

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WHAT I CLAIM IS:

1. A block for use in the erection of retaining or other walls, said block having an elongate and generally rectangular formation, the end portions of said block being provided with outstanding projections on the upper face and/or the lower face thereof and with grooves or recesses on two opposite side faces; the arrangement providing that the projections on the end portion of one block are engageable with the grooves or recesses in the end portion of an identical further block when the end portions are placed one upon the other with one block generally at right angles horizontally to the other block.

2. A block as claimed in claim 1 wherein at each end portion of the block there are provided two upstanding projections or studs in spaced relationship along the centre line of the upper face, one such projection being at the end of the block and the other projection spaced therefrom so that the dimension over the projections is substantially equal to the external width of the block, and on each opposed side wall of each end portion there is provided a groove or recess extending upwardly from the bottom of the block and at a distance from the end of the block equal to one half the external width of the block, the grooves or recesses being complementary in cross-section to the cross-section of each projection or stud when viewed in plan and the grooves or recesses extending upwardly for at least the height of the projections which are to be accommodated therein.

3. A block as claimed in claim 2 wherein the grooves or recesses extend vertically from the bottom to the top of the block so as to open to the upper side as well as the lower side of the block.

4. A block as claimed in any one of the preceding claims wherein the projections are of rectangular cross-section and the grooves or recesses are of complementary rectangular cross-section.

5. A block as claimed in any one of claims 1 to 3 inclusive wherein the projections are of semi-circular cross-section and the grooves or recesses are of complementary semi-circular cross-section when viewed in plan.

6. A block as claimed in any one of the preceding claims which is arranged to be inverted in use in erecting a wall.

7. A block as claimed in any one of the preceding claims wherein the end portions of each block are each provided with a vertical centrally placed hole which is alignable with a next inter-locking block and wherein such as a steel reinforcing rod can be located.

8. A block as claimed in any one of the preceding claims wherein the length of the block is equal to twice its width.

9. A block as claimed in any one of claims 1 to 7 inclusive wherein the block has a series of additional projections and recesses intermediate the block ends, said additional projections and recesses being set out at intervals equal to the external width of the block and in a manner complementary to the end setting out.

10. A block as claimed in claim 9 wherein the length of the block is in multiples of its width and sets of projections and recesses are provided along the full length thereof.

11. A block as claimed in claim 1 wherein its length is in multiples of its width and has projections and recesses disposed in reverse positions to the projections and recesses of the block according to claim 2, or according to any claim which is dependant upon claim 2, and of complementary formation

thereto so that alternate tiers of blocks in accordance with this claim can be laid in staggered relationship and parallel to and interlocking with blocks according to the said claim 2 or said dependant claim.

5 12. A block for use in the erection of retaining or other walls substantially as hereinbefore described with reference to figures 1 to 6 of the accompanying drawings.

10 13. A block for use in the erection of retaining or other walls arranged and constructed and adapted for use substantially as hereinbefore described with reference to figures 7 and 8 of the accompanying drawings.

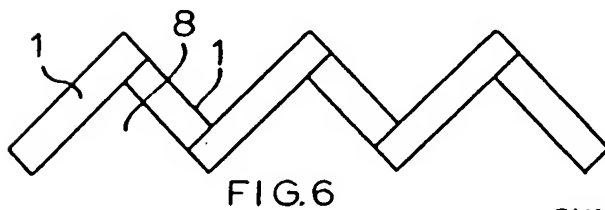
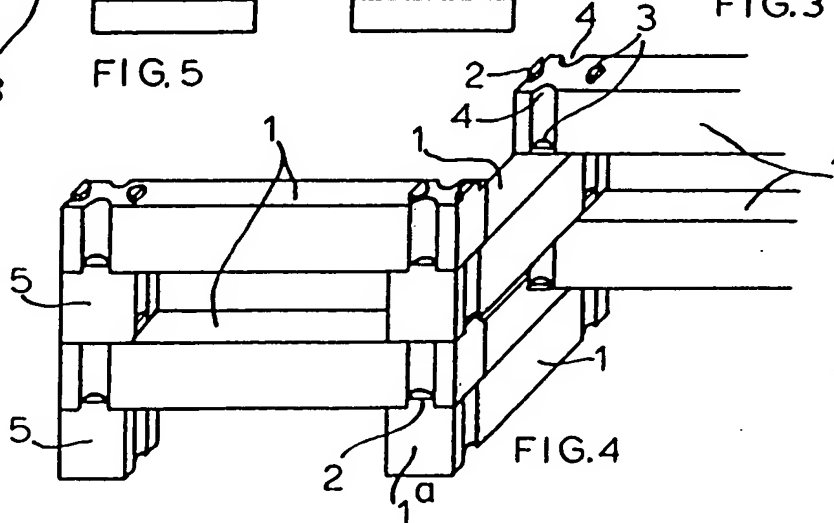
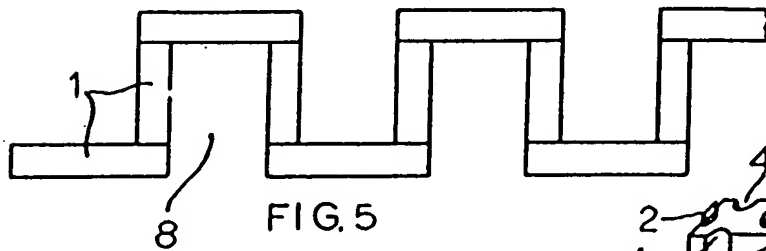
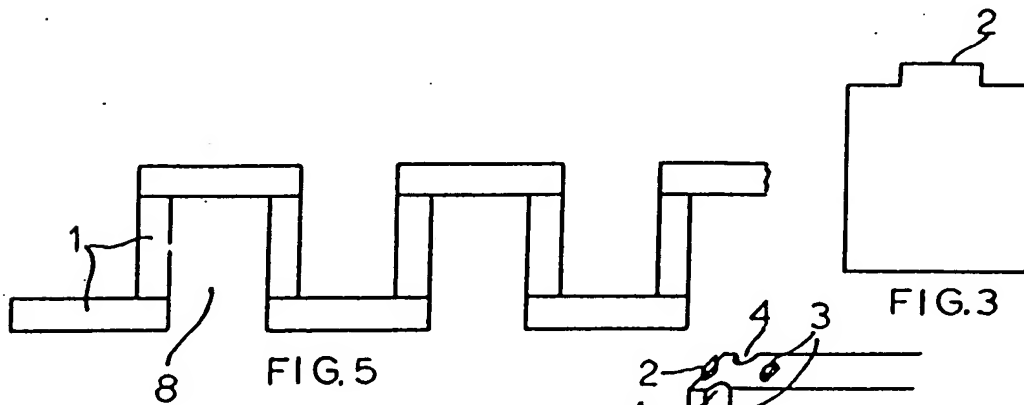
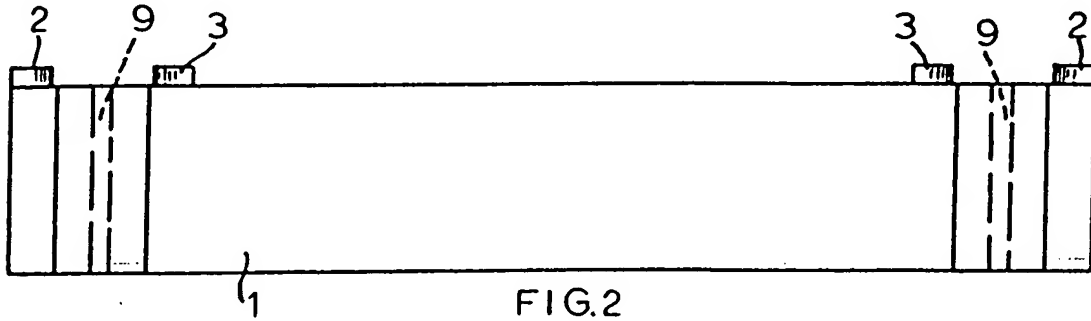
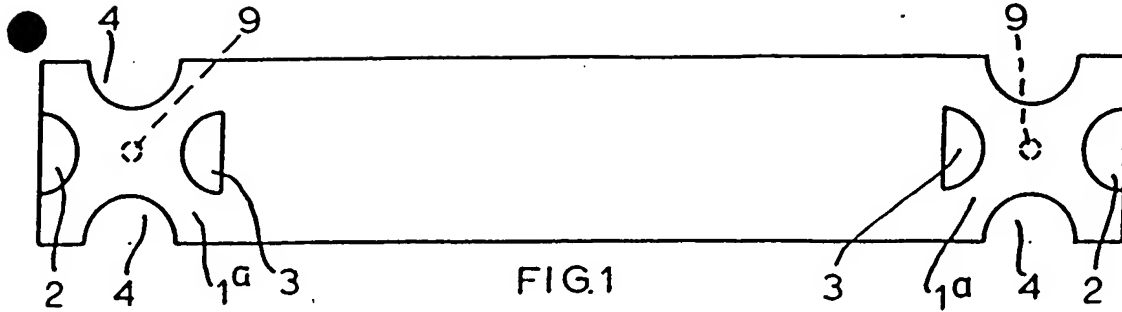
15 14. A block for use in the erection of retaining or other walls arranged and constructed and adapted for use substantially as hereinbefore described with reference to figures 7 to 10 of the accompanying drawings.

15 15. A block for use in the erection of retaining or other walls arranged and constructed and adapted for use substantially as hereinbefore described with reference to the accompanying drawings.

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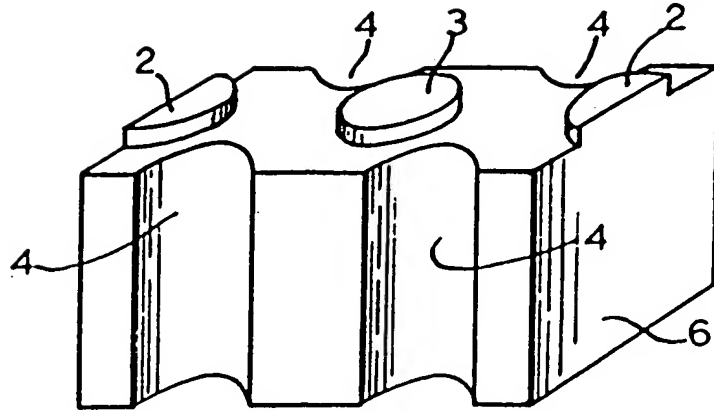


FIG. 7

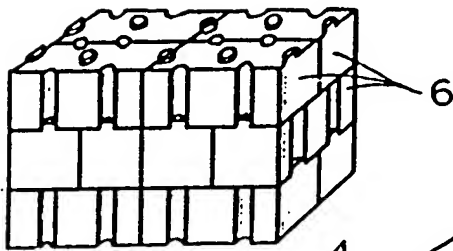


FIG. 8

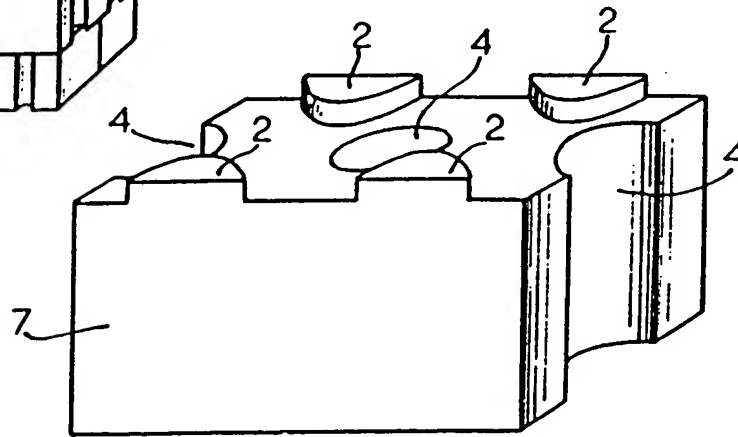


FIG. 9

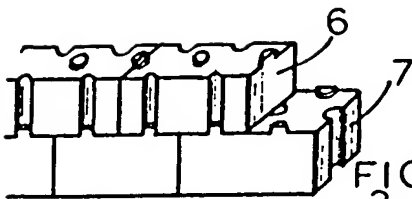


FIG. 10

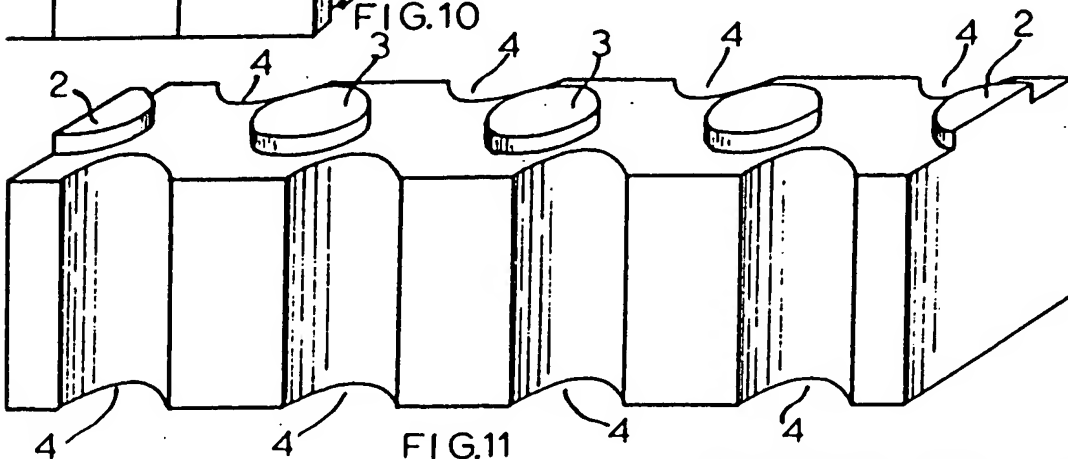


FIG. 11

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